

IN THE DRAWINGS:

Enclosed herein is a Replacement Sheet of formal drawing Figure 3, which has been amended to remove/replace the French language therein.

REMARKS

Claims 1-21 are pending. By this Amendment, Figure 3, the Specification, and Claims 1-21 are amended. As the drawing figure is amended to remove/replace foreign language terms therefrom and replace such with their English counterparts; the Specification is amended to add headings for corresponding sections of the written description; and Claims 1-21 are amended for cosmetic, grammatical and clarity purposes, Applicant respectfully submits that no new matter is presented herein.

Figure 3

The drawing is objected for including indicia in a foreign language (French). Enclosed herein is a replacement sheet of formal drawing Figure 3, wherein the indicia along the vertical axis has been replaced with corresponding English terms. Applicant respectfully requests withdrawal of the objection.

Specification

Applicant has amended the Specification herein to include headings which were erroneously omitted from the originally filed version of the application.

Claim Rejections – 35 U.S.C. §112

Claims 1-21 are rejected under 35 U.S.C. §112, second paragraph. The claims have been amended herein responsive to the rejection. Applicant has also further amended the claims for grammatical and clarity purposes. As such, Applicant respectfully requests withdrawal of the rejection.

Claim Rejections – 35 U.S.C. §102

Claims 1-21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Number 6,205,829 to Schwedt in view of U.S. Patent Number 4,616,494 to Kotera. Applicant respectfully traverses the rejection.

Claims 1, 13 and 18 recites a rolling mill having or performing, among other features, a dynamic balance of the torques that are applied onto the working rolls in each roll stand without noticeably disturbing the final thickness of a product being rolled by the rolling mill.

Applicant respectfully submits Schwedt and Kotera do not render the claimed invention obvious for the following reasons.

As admitted by the Office Action, Schwedt fails to teach or suggest any dynamic load balancing taking place throughout the numerous stands of the rolling mill taught therein.

Applicant further notes that Schwedt teaches a method of regulating a multi-frame hot rolling mill that does not have any force sensors (see column 1, lines 6-8). Schwedt specifically excludes the inclusion of force sensors in his method/rolling mill because they are expensive, difficult to install and maintain, constitute a source of breakdowns, and because the solution that requires the presence of such sensors is not always applicable, particularly in rolling mills that produce bars or girders in which such sensors are rarely installed (see column 2, lines 18-25). In essence, Schwedt teaches a method wherein starting from an initial situation while a product is being passed into the various stands of the run, torque is measured at each stand through which the product passes at the moment when the product reaches the following stand downstream therefrom, the

measured value is stored as a reference value, and the stand for which the measurement is made is switched from speed regulation to torque regulation. The last stand into which the product enters acts as a speed controlling stand for all other stands situated upstream therefrom, thereby enabling it to retain torque equal to its reference torque by varying its speed. Continuous updating of the estimated traction torque and of the rolling torque for zero traction is performed at each stand, and the estimated inter-stand traction values make it possible to regulate such values to levels which are predefined in the rolling plan. This makes it possible to set out to perform rolling with minimal inter-stand traction levels, as recommended by numerous mill operators.

Kotera is applied for rolling load detectors that send load amounts to a controller that then balances the loads for each roll stand.

As such, the Office Action asserts it would have been obvious to modify the Schwedt method according to the teachings of Kotera in order to quickly respond to changes in rolling thickness.

However, Applicant notes Schwedt specifically excludes sensors or load detectors because Schwedt is not concerned with rolling thickness, but rather is focused on minimizing inter-stand traction levels, as is desired by mill operators. Schwedt is not concerned or motivated with maintaining the thickness of the product being rolled by the mill because that is not the problem Schwedt seeks to solve. Rather, Schwedt is concerned with providing a method of estimating and regulating the tension and compression in a multi-stand (roll stands) rolling mill working on hot metal products, not with the thickness of the rolled product. Apparently, the Kotera load detectors are critical for performing dynamic balancing of torques being applied to working rolls, but

Schwedt is not concerned with such aspects of rolling products and even specifically explains why such a feature (that is, the load detectors or sensors) are not provided in the method taught therein. Put simply, Schwedt is not concerned with dynamically balancing the torques of the working rolls in each roll stand because Schwedt incrementally adjusts tension and compression to minimize traction between stands.

In other words, Schwedt and Kotera teach away from each other (i.e., incremental versus dynamic balancing). Indeed, the control system of Schwedt is permanently adjusted on the rolling torque for zero traction at each stand successively, when the dynamic balancing of torque, which is performed in Kotera, provides a permanent evolution of the tractions between the stands. Thus, modifying Schwedt according to the teachings of Kotera would change the principle of the operation method taught by Schwedt, rendering Schwedt unsatisfactory for its intended purpose. Moreover, Applicant notes that in Kotera, the transitory effects of the method are not taken into consideration.

As such, Applicant respectfully submits Claims 1, 13 and 18 are not obvious in view of the teachings of Schwedt and Kotera and should be deemed allowable over such references.

Claims 2-12 and 20-21 depend from Claim 1. Claims 14-17 depend from Claim 13. Claim 19 depends from Claim 18. It is respectfully submitted that these dependent claims be deemed allowable for at least the same reasons Claims 1, 13 and 18 are allowable, as well as for the additional subject matter recited therein.

Applicant respectfully requests withdrawal of the rejection.

Conclusion

In view of the foregoing, reconsideration of the application, withdrawal of the outstanding objections and rejections, allowance of Claims 1-21, and the prompt issuance of a Notice of Allowability are respectfully solicited.

Should the Examiner believe anything further is desirable in order to place this application in better condition for allowance, the Examiner is requested to contact the undersigned at the telephone number listed below.

In the event this paper is not considered to be timely filed, the Applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account No. 01-2300, **referencing docket number 103120-00058**.

Respectfully submitted,
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Enclosures: Replacement Sheet of Formal Drawing Figure 3
Petition for Extension of Time (1 month)

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